| | |
|---|---|
| **NWS Form E-5**<br>U.S. DEPARTMENT OF COMMERCE<br>NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL WEATHER SERVICE<br><br>**MONTHLY REPORT OF HYDROLOGIC CONDITIONS** | **HYDROLOGIC SERVICE AREA:**<br>Pocatello, Idaho (PIH)<br><br>**REPORT FOR:**<br><br>**MONTH:** December **YEAR:** 2017 |
| **TO:** Hydrologic Operations Division, W/OH2<br>National Weather Service<br>National Oceanic and Atmospheric Administration<br>Silver Spring, Maryland 20910 | **SIGNATURE**<br><br>Travis Wyatt<br>Service Hydrologist / Acting<br><br>**DATE:** January 16, 2018 |
| When no flooding occurs, include miscellaneous river conditions, such as significant rises, record low stages, ice conditions, snow cover, droughts and hydrologic products issued (NWS Instruction 10-924). | |

X **An X in this box indicates that *no* flooding has occurred for the month within this hydrologic service area.**

**Overview:**

Most of the area saw below normal precipitation. The five climate stations (Burley, Challis, Idaho Falls, Pocatello and Stanley) ranged from 0.18 inch of precipitation (-0.56 below average) for Challis to 1.34 inches of precipitation (0.07 above average) for Stanley. There were no precipitation records for the month of December for our five climate locations. The highest recorded monthly precipitation totals (non-SNOTEL and non-RAWS) were 1.75, 1.45, and 1.38 inches respectively at the Ashton, Island Park, and Swan Valley CO-OP stations. The highest recorded 24-hr precipitation (non-SNOTEL and non-RAWS) occurred at the Ashton, Lava Hot Springs, and Swan Valley CO-OP stations where 0.74, 0.47, and 0.45 fell respectively on the 4th, 26th, and 23rd respectively. All basins were below normal. Basin ranged from 15 to 81 percent of normal. The basins receiving the greatest precipitation were the Raft river, Cub river, and Blackfoot river Basins receiving 81%, 80%, and 77% of average precipitation respectively for the month of December-based on SNOTEL data. The basins receiving the least precipitation were the Little Wood, Big Wood abv Hailey, and Big Lost abv Mackay receiving 15%, 30%, and 39% respectively for the month of December-based on SNOTEL data.

Mean average temperatures ranged from 12.3 degrees F for Stanley to 29 degrees F for Shoshone across the HSA. The Snake River plain was near normal while most of the area was 1 to 3 degrees above normal with portions of the Central/Pahsimeroi mountains 3 to 6 degrees above normal The five climate stations ranged from -0.1 degree below normal for Idaho Falls to 5.4 degrees above normal for Challis. There were four high temperature records for the month of December for our five climate locations: one in Pocatello and three in Stanley. Of the data available for the month, the stations (non-SNOTEL and non-RAWS) within the HSA reaching the highest 24-hour temperatures were Oakley CO-OP, Burley airport, and the Bellevue CO-OP reaching 57°F, 54°F, and 53°F respectively on the 28th, 19th, and 29th respectively. The stations (non-SNOTEL and non-RAWS) with the lowest recorded temperature were the Stanley, Island Park, and Bern COOP stations at -30°F, -28°F, and -18°F respectively on the 25th, 23rd, and 24th .

As far as the short-term 8 to 14 day Climate Prediction Center Outlook is concerned, the eastern Idaho forecast is a 40 to 50% percent chance for below normal temperatures and a 40 percent chance for above normal precipitation. The one-month forecast graphics are below. For the three-month outlook, the temperature forecast is a 33 percent chance to be above normal for our extreme southern areas and equal chances for above or below normal temperatures elsewhere. As for three-month outlook for precipitation, the outlook is a 33 to 40% percent chance for above normal.

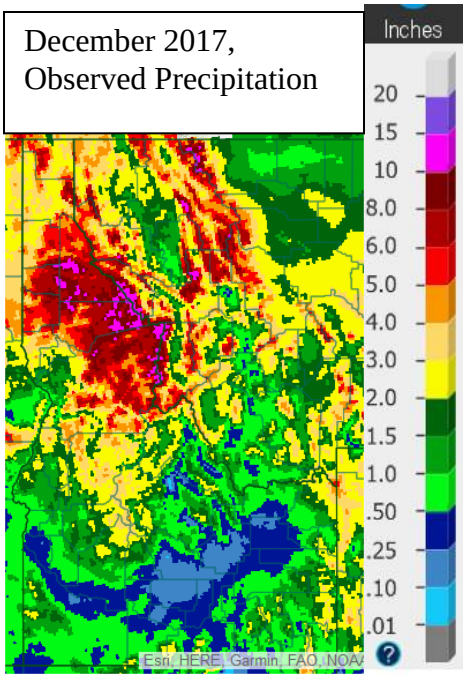
Storage for reservoirs in the Upper Snake River basin system for December remained the same over the month of November with streamflow above normal. As of January 13, 2018, the Upper Snake River system was sitting at 87% of capacity. Compared to last year at that time, it was about 52% of capacity. As of December 31, 2017, Oakley, Ririe, Little Wood, Mackay, Jackson, Blackfoot, and Magic had the lowest percent of average capacity at 44%, 54%, 71%, 76%, 77%, 78% and 79% of average respectively. As of January 13, 2018, Milner had 68% of average. All other reservoirs were at or above 80% capacity. All reservoirs as of December 31, 2017 were 103 % or higher above average for that time of year.

Current streamflow conditions in eastern Idaho are high for the headwaters of the Salmon. They are much above normal for the Salmon below Stanley, Big Lost, and Snake above Heise. The rest of the basins are above normal (see USGS streamflow graphic below).

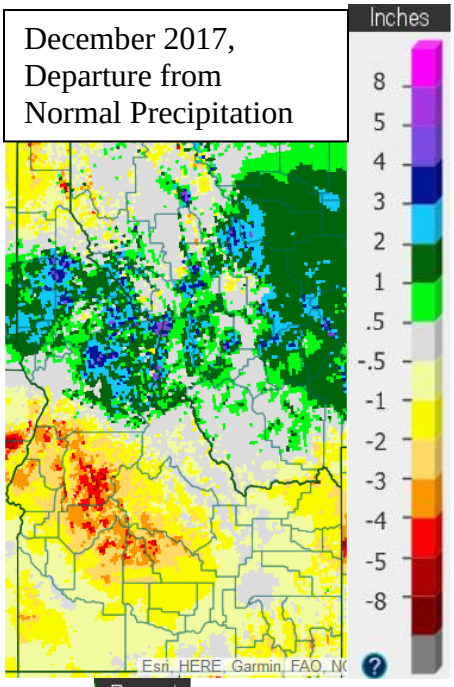
There was a small area of abnormally dry across our extreme west central Idaho as reflected on the latest U.S. Drought Monitor. The latest update of the U.S. Seasonal Drought Outlook shows Idaho continuing to have no drought conditions.

**Precipitation:**

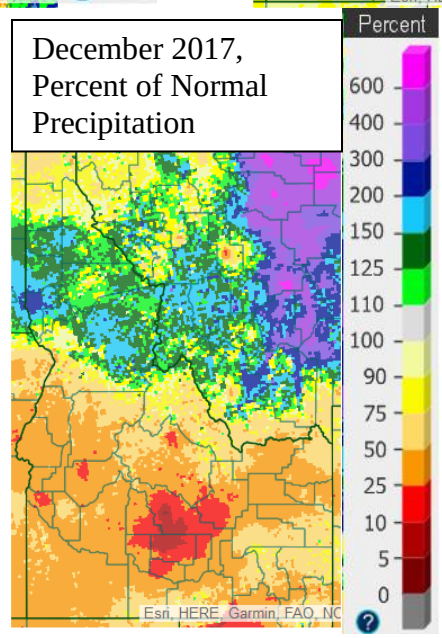
December 2017,
Observed Precipitation



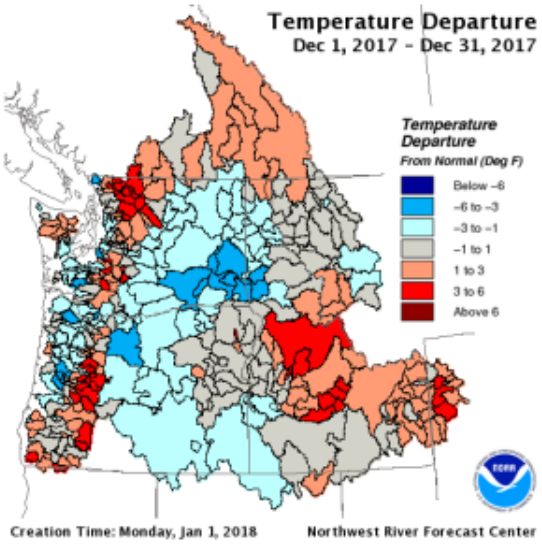

December 2017,
Departure from
Normal Precipitation

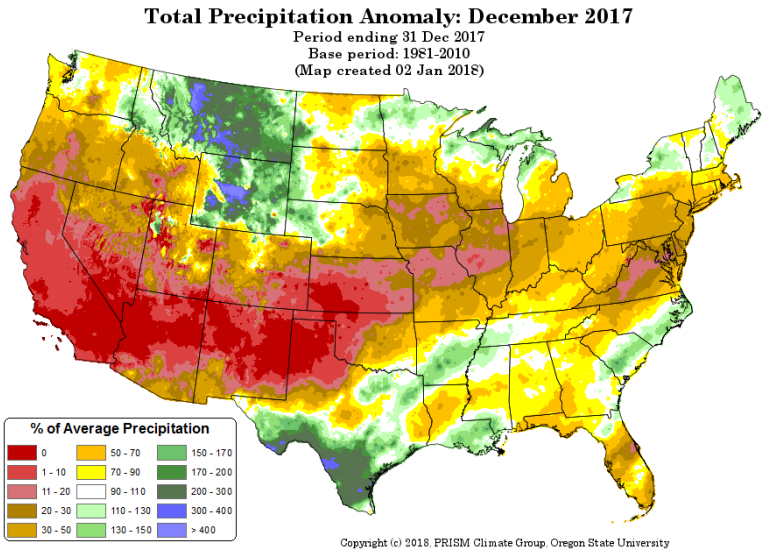



December 2017,
Percent of Normal
Precipitation



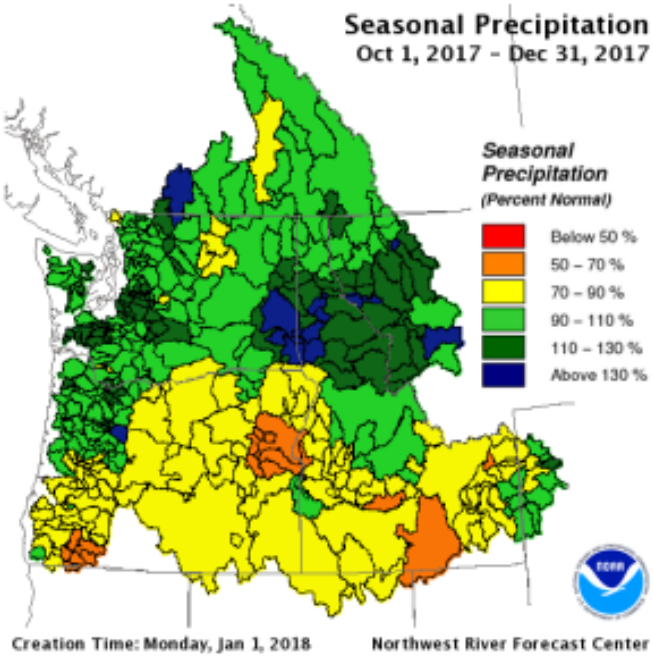

**http://water.weather.gov/precip/**

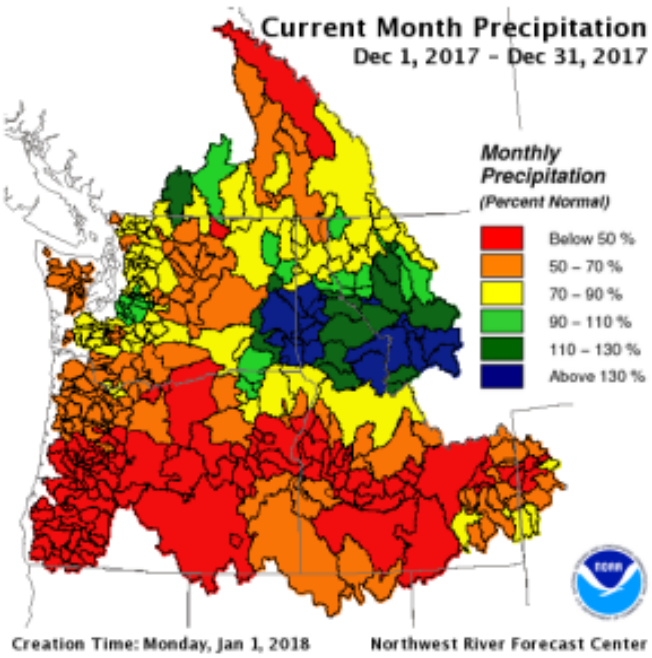



https://www.nwrfc.noaa.gov/WAT_RES_wy_summary/20170701/CurMonMAT_2017Jun30_2017070117.png

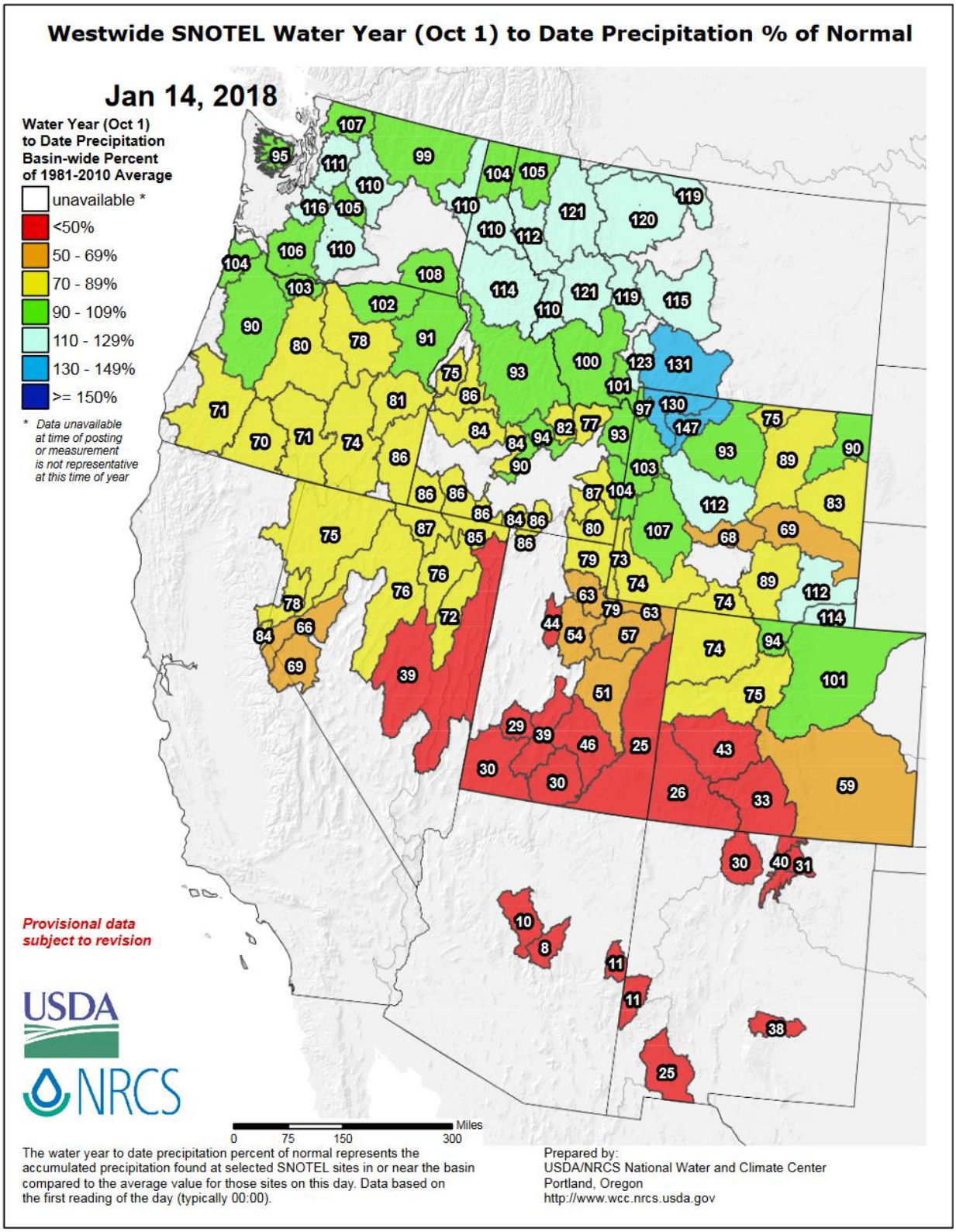
**http://prism.oregonstate.edu/comparisons/anomalies.php**



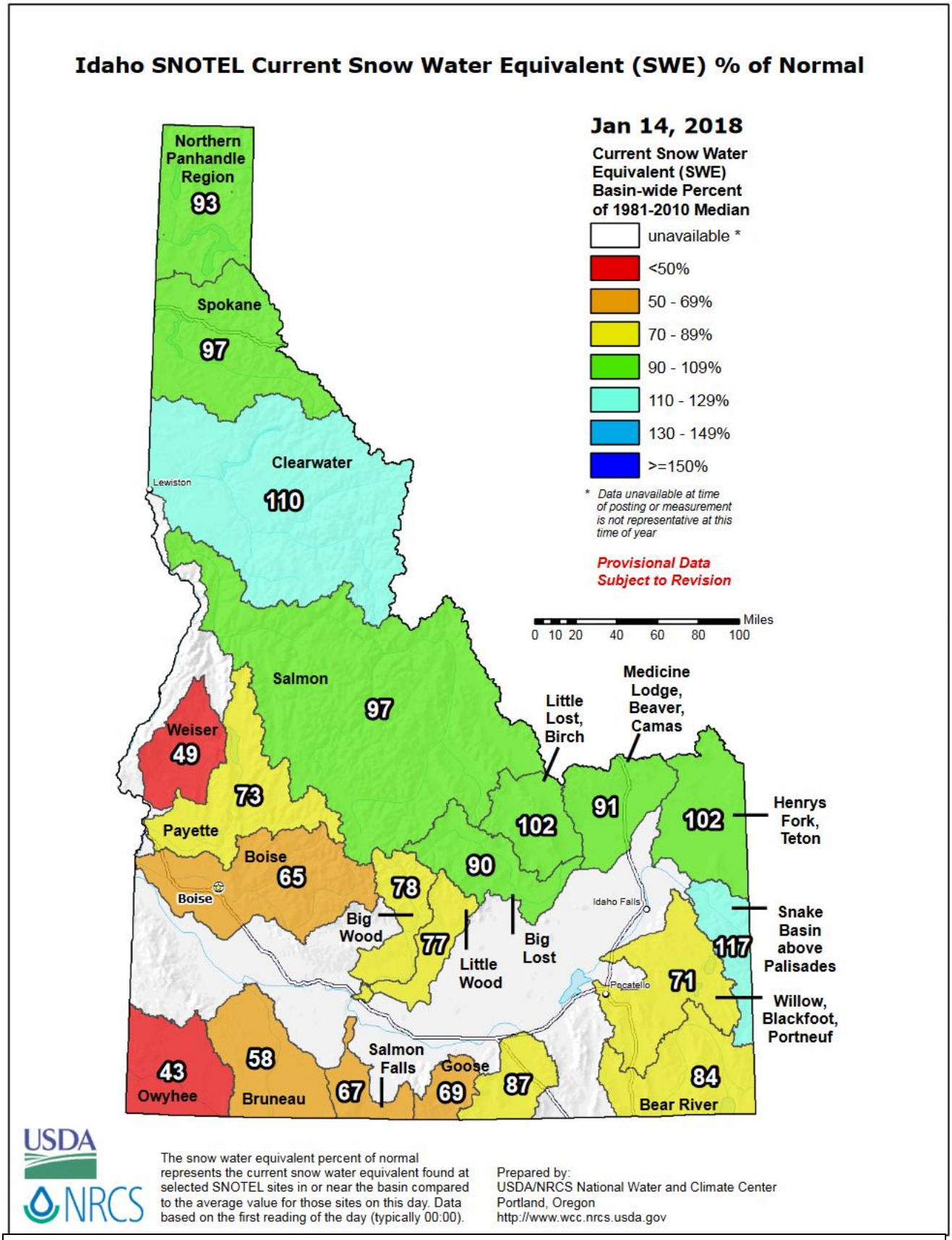




https://www.nwrfc.noaa.gov/WAT_RES_wy_summary/20170701/CurMonMAT_2017Jun30_2017070117.png

https://www.nwrfc.noaa.gov/WAT_RES_wy_summary/20170701/CurMonMAP_2017Jun30_2017070117.png

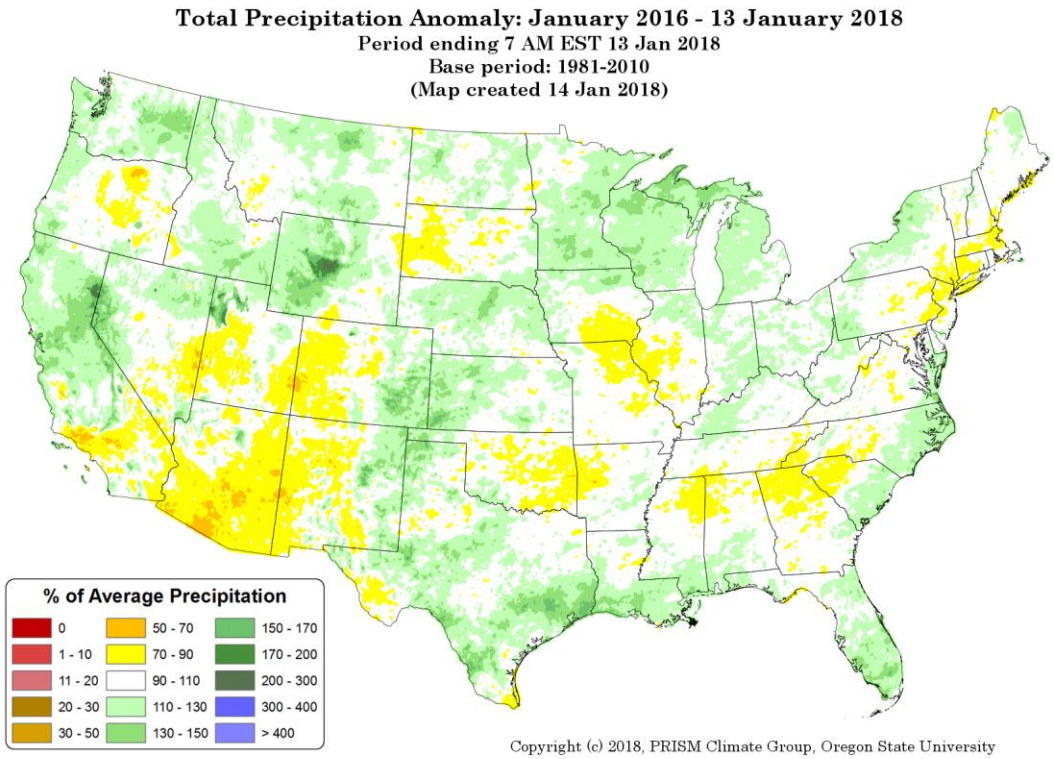



**http://www.wcc.nrcs.usda.gov/ftpref/data/water/wcs/gis/maps/west_wytdprecpctnormal_update.pdf**

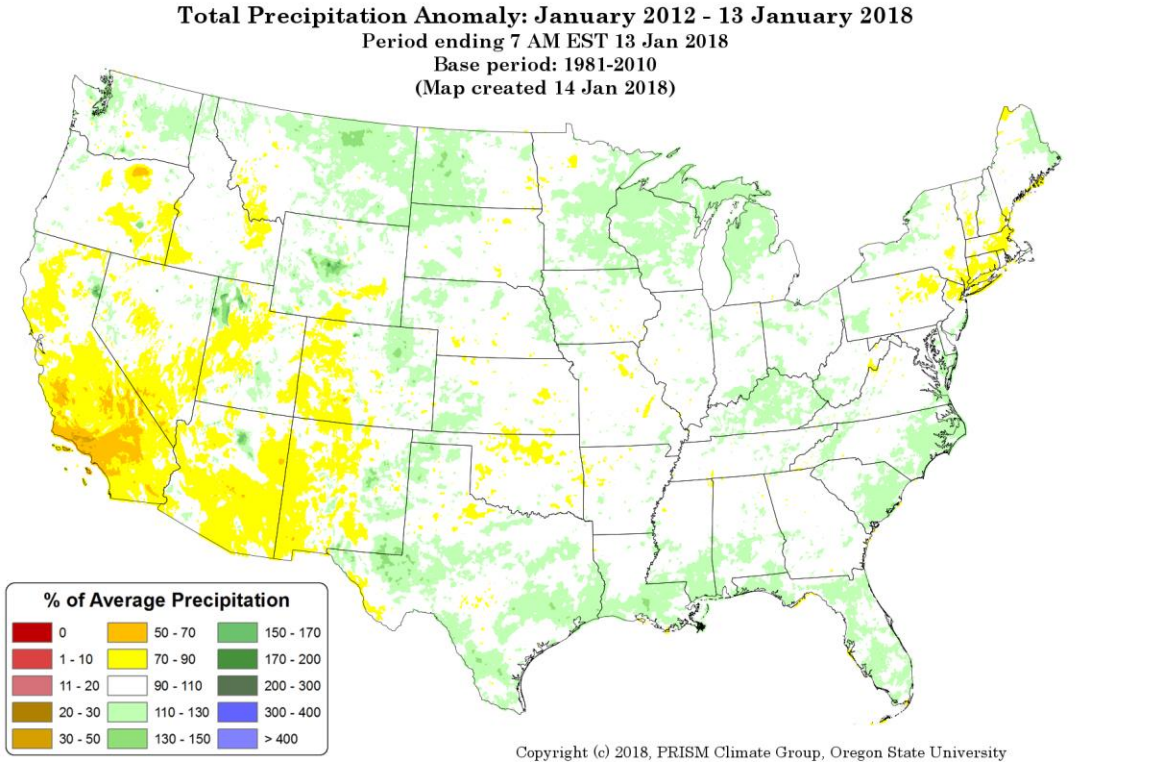



**https://www.wcc.nrcs.usda.gov/ftpref/data/water/wcs/gis/maps/id_swepctnormal_update.pdf**

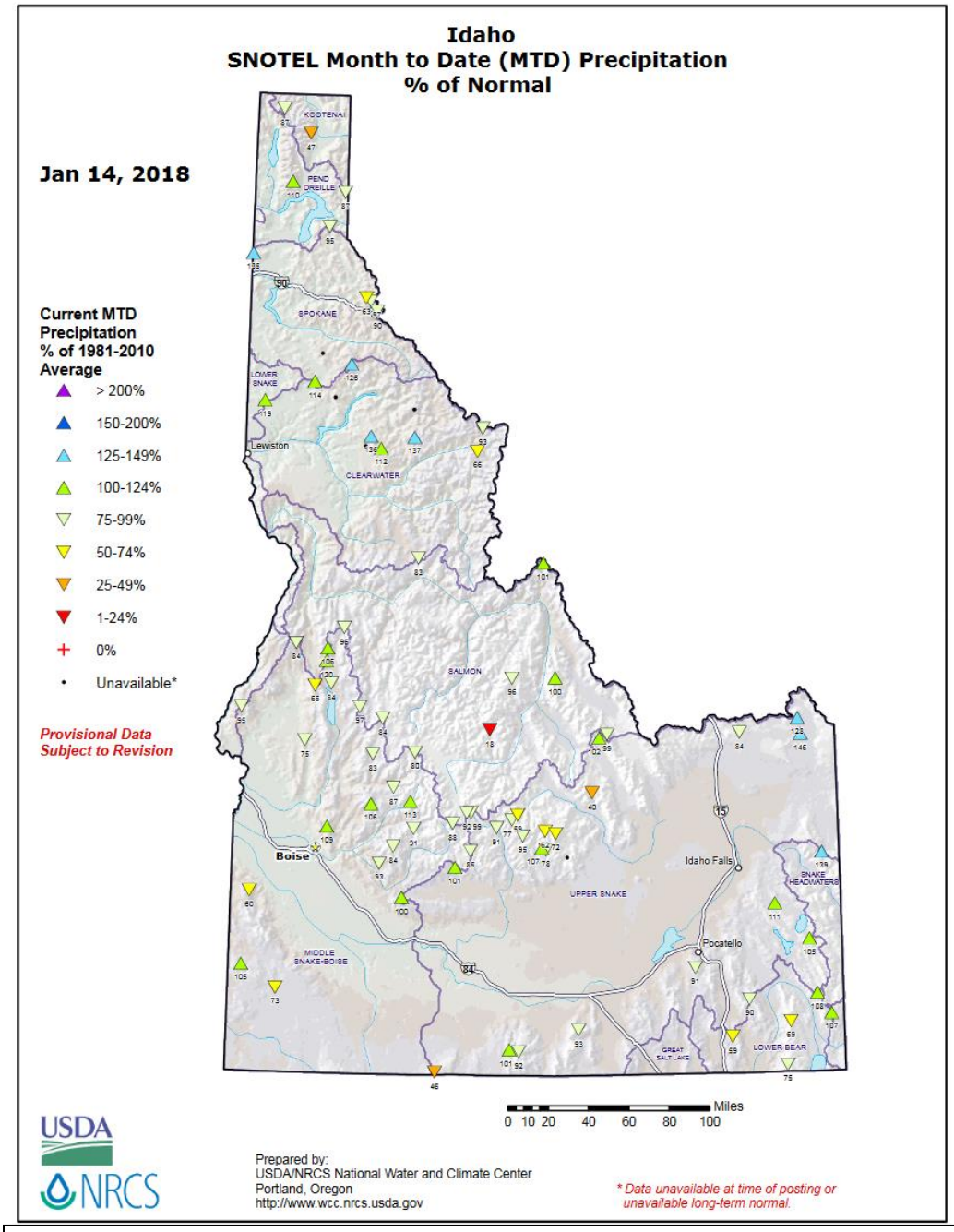
## Past 2 Years of Precipitation % of Average:



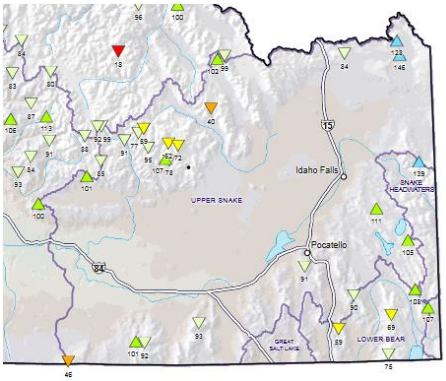

## Past 6 Years of Precipitation % of Average:



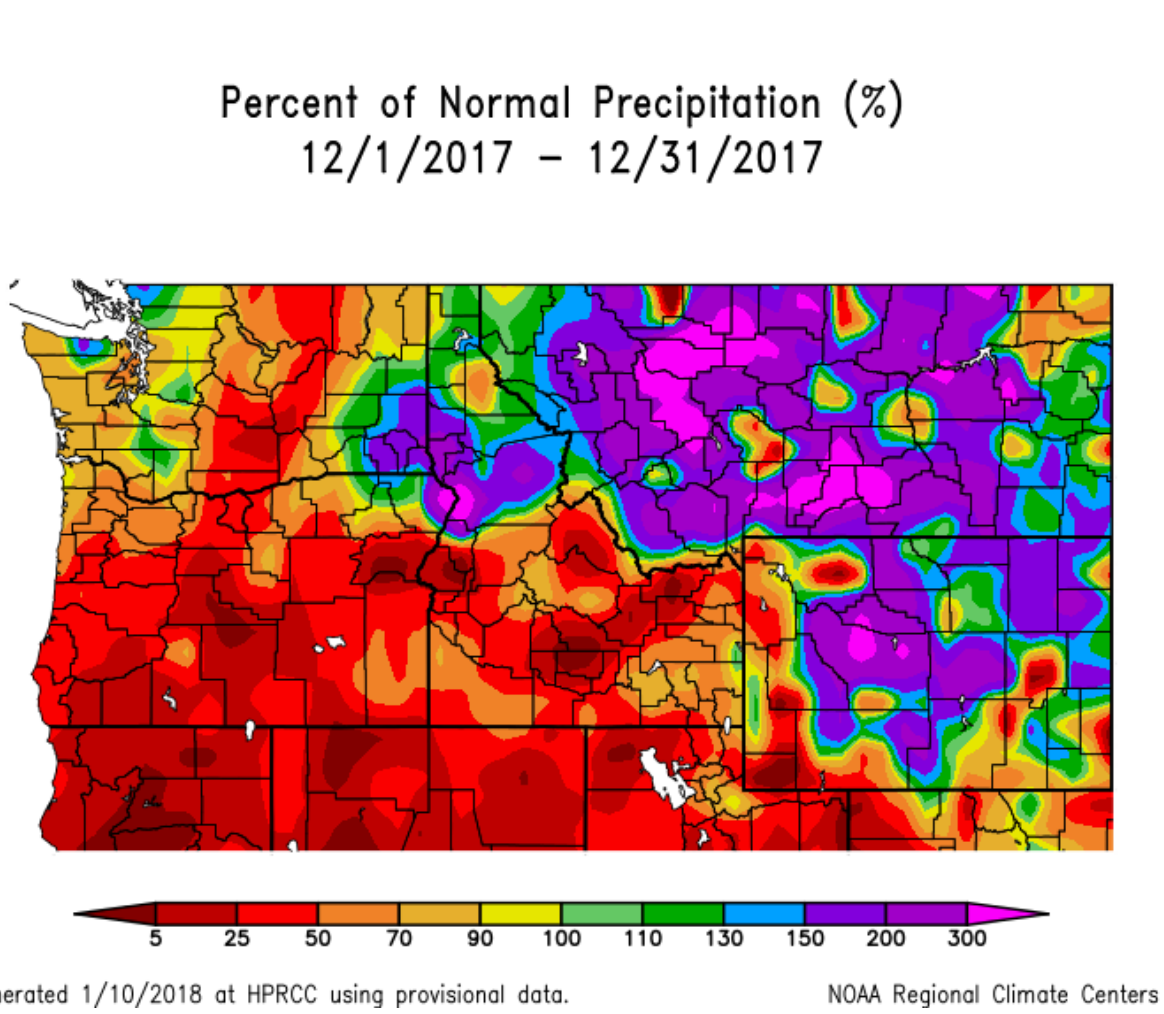

**www.prism.oregonstate.edu/comparisons/drought.php**




**http://www.wcc.nrcs.usda.gov/ftpref/data/water/wcs/gis/maps/id_mtdprecpctnormal.pdf**



**SNOTEL MTD % of Normal Precipitation for thru Mid December 2017**
**(image is cropped from above image)**

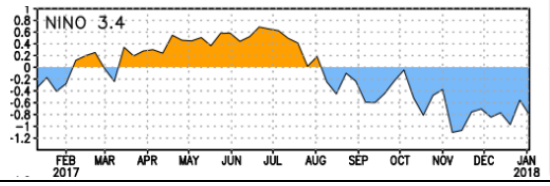



**http://www.hprcc.unl.edu/maps.php?map=ACISClimateMaps**

Most of our area received received well below normal precipitation with most of the area receiving 15 to 80 perecent of normal precipitation.

**ENSO Update:**

**Latest Observed SST Departure:**
Niño 3.4 ~ -0.8 Deg C



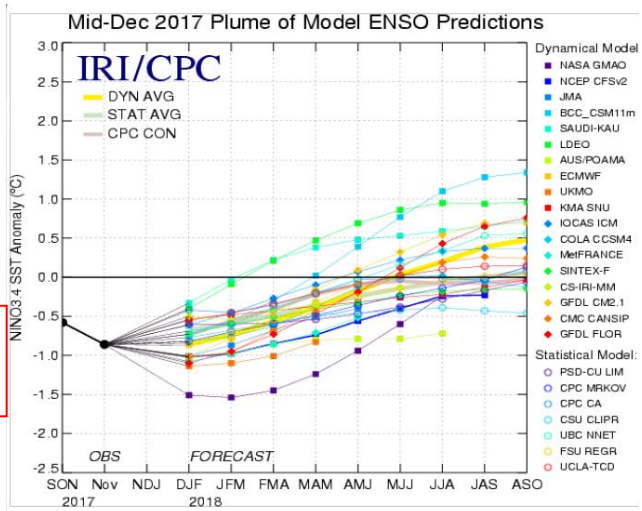




Figure provided by the International Research Institute (IRI) for Climate and Society (updated 18 December 2017).

**www.cpc.ncep.noaa.gov, iri.columbia.edu/climate/ENSO**

**CPC Synopsis:** La Nina conditions are present. La Nina is likely (~80% chance) through the Northern Hemisphere winter 2017-18, with a transition to ENSO-neutral most likely during the mid-to-late spring.

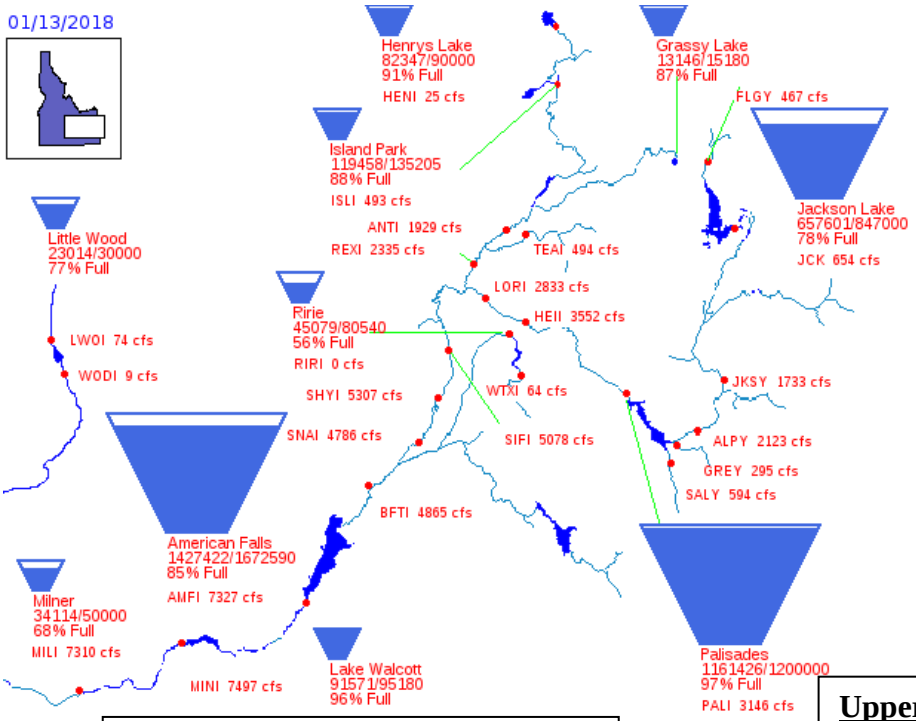
**Note:** Equatorial sea surface temperatures (SSTs) are below average across the central and eastern Pacific Ocean. The enhanced convective phase of the Madden-Julian Oscillation (MJO) has remained over the Indian Ocean through the last week, with some movement toward the Maritime Continent. Dynamical models show eastward propagation of the MJO signal, with the enhanced convection over the eastern Indian Ocean and parts of the Maritime Continent for the Week-1 and further east over the Maritime Continent for Week-2. Dynamical and statistical tools show a possible slight increase in amplitude into Week-2. The Pacific Decadal Oscillation (PDO) continues to be slightly negative, -0.18.

**Reservoirs:**

| Reservoir | % Capacity November 30[1] | % Capacity December 31[2] | Percent Change | % of Average[2] | % of Average Last Year[2] |
|---|---|---|---|---|---|
| Jackson Lake | 77 | 77 | 0 | 155 | 126 |
| Palisades | 97 | 97 | 0 | 153 | 63 |
| Henrys Lake | 91 | 91 | 0 | 103 | 101 |
| Island Park | 87 | 88 | +1 | 127 | 83 |
| Grassy Lake | 84 | 86 | +2 | 112 | 119 |
| Ririe | 50 | 54 | +4 | 121 | 127 |
| Blackfoot | 76 | 78 | +2 | 154 | 122 |
| American Falls | 80 | 86 | +6 | 151 | 92 |
| Mackay | 85 | 76 | -9 | 154 | 156 |
| Little Wood | 58 | 71 | +13 | 155 | 147 |
| Magic | 73 | 79 | +6 | 233 | 129 |
| Oakley | 42 | 44 | +2 | 165 | 80 |
| Bear Lake | 81 | 80 | -1 | 178 | 79 |
| Lake Walcott | 95[3] | 96[4] | +1 | n/a | n/a |
| Milner | 69[3] | 68[4] | -1 | n/a | n/a |

**Source:** (1) NRCS November 30, 2017; (2) NRCS December 31, 2017.
(3) US Bureau of Reclamation (BOR) Dec 21, 2017 (4) BOR Jan 13, 2018

**https://www.wcc.nrcs.usda.gov/ftpref/support/water/SummaryReports/ID/BRes_1_2018.pdf**

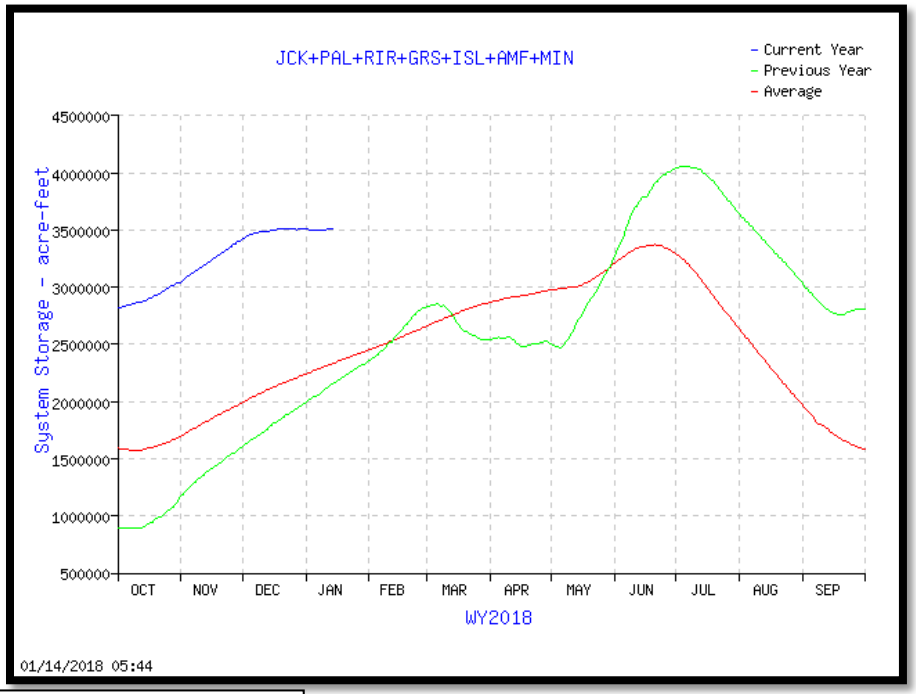



**87% of Capacity in Upper Snake River System**
**(Jackson Lake, Palisades, Grassy Lake, Island Park, Ririe, American Falls & Lake Walcott)**

**www.usbr.gov/pn/hydromet/burtea.html**

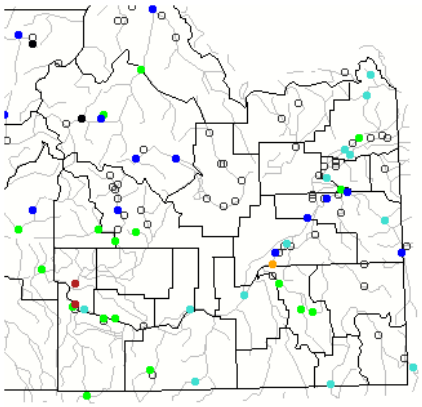
**Upper Snake River:**
**Total Space Available: 529,992 AF**
**Total Storage Capacity: 4,045,695 AF**

**Graph of Upper Snake River Current Total System Reservoir Storage**




**https://www.usbr.gov/pn-bin/graphwy.pl?snasys_af**

**Streamflow:**



Monthly average streamflow compared to historical average streamflow for December 2017.

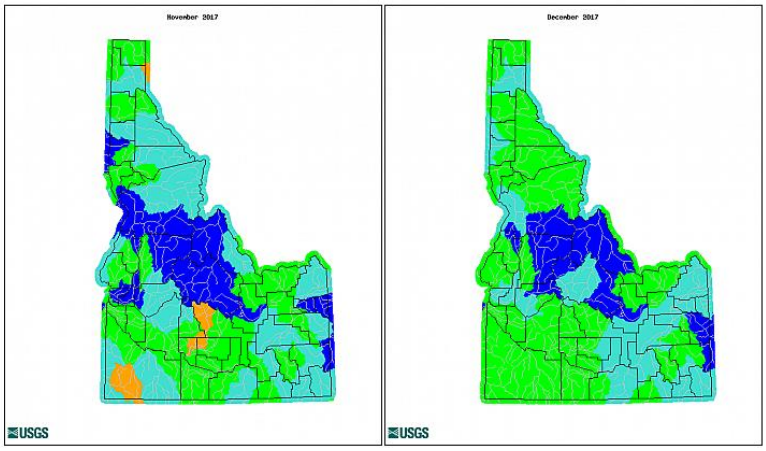
USGS

**https://waterwatch.usgs.gov/index.php?r=id&id=mv01d**

| Explanation - Percentile classes | | | | | | | |
|---|---|---|---|---|---|---|---|
| Low | <10 Much below normal | 10-24 Below normal | 25-75 Normal | 76-90 Above normal | >90 Much above normal | High | Not-ranked |

Date (YYYYMM): 201711

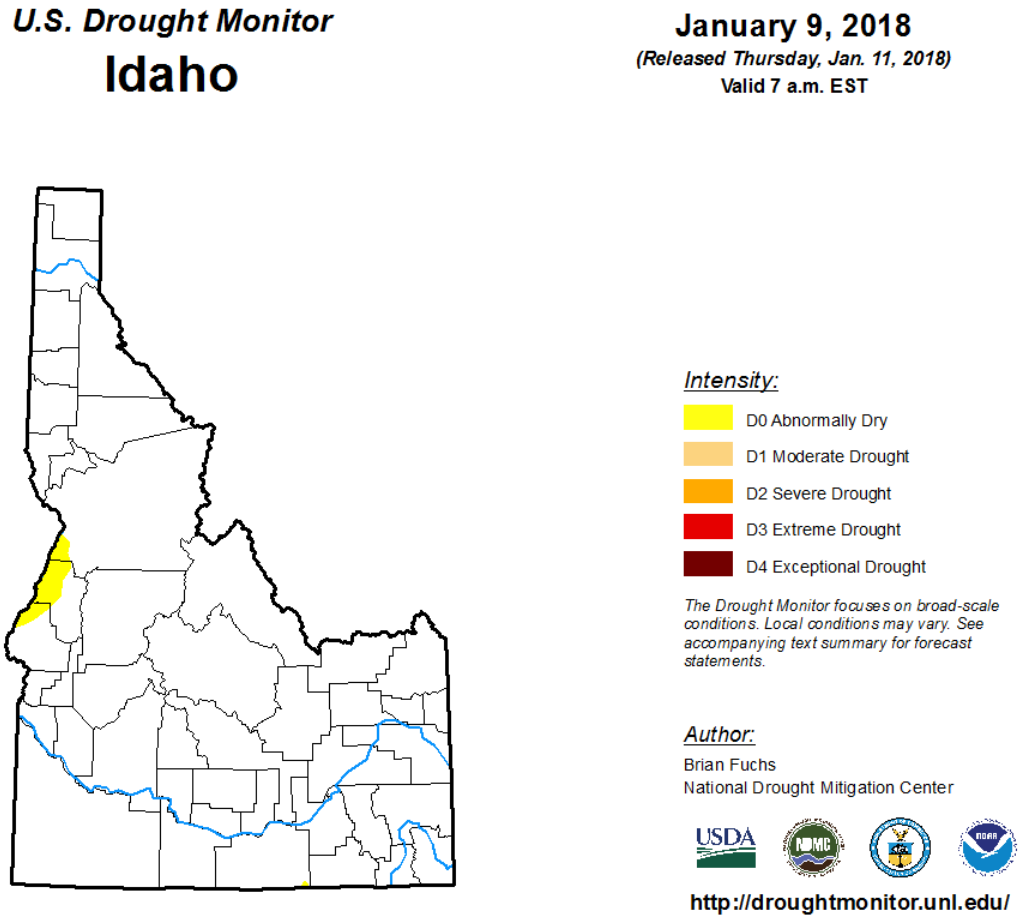
Date (YYYYMM): 201712

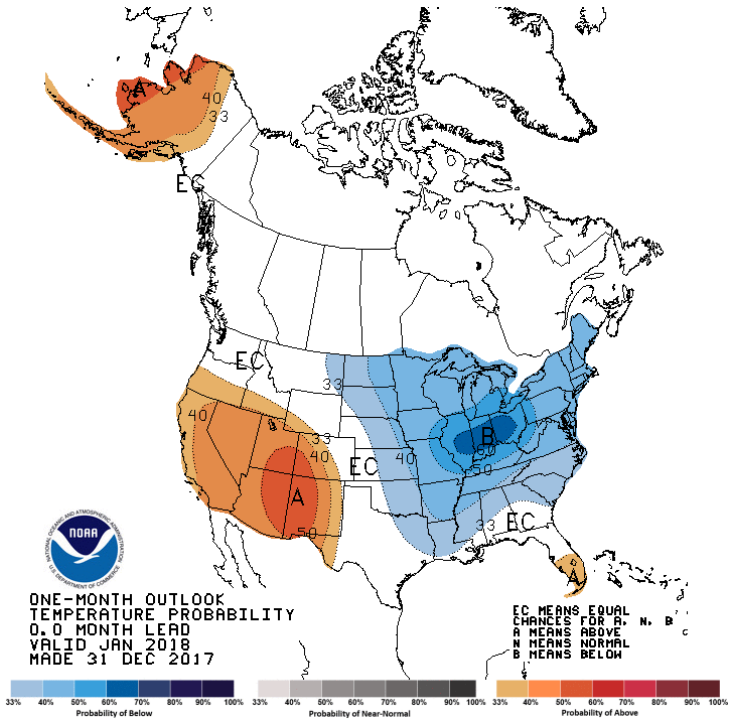



| Explanation - Percentile classes | | | | | | | |
|---|---|---|---|---|---|---|---|
| Low | <10 Much below normal | 10-24 Below normal | 25-75 Normal | 76-90 Above normal | >90 Much above normal | High | No Data |

http://waterwatch.usgs.gov/index.php?id=wwchart_map2

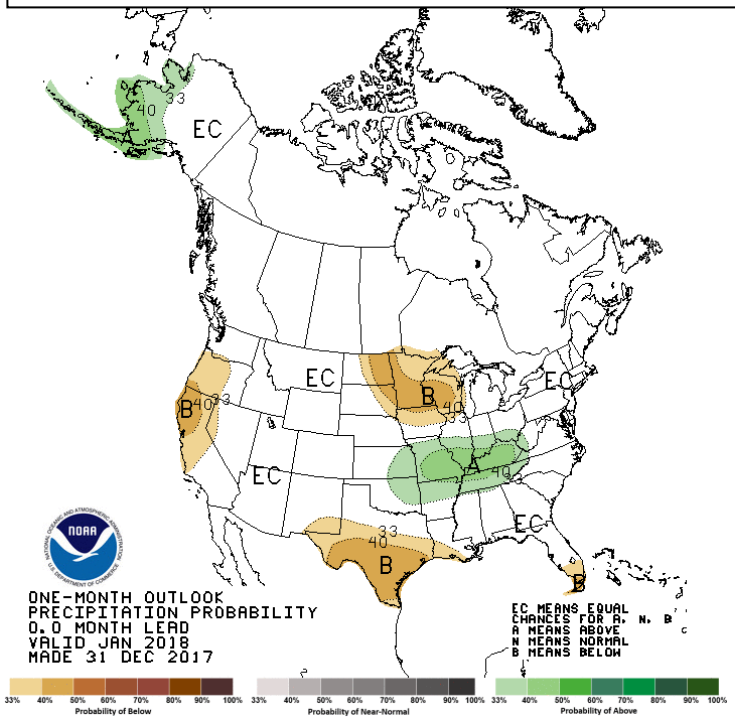
**Drought:**




**www.cpc.ncep.noaa.gov/products/predictions/30day/off15_temp.gif**

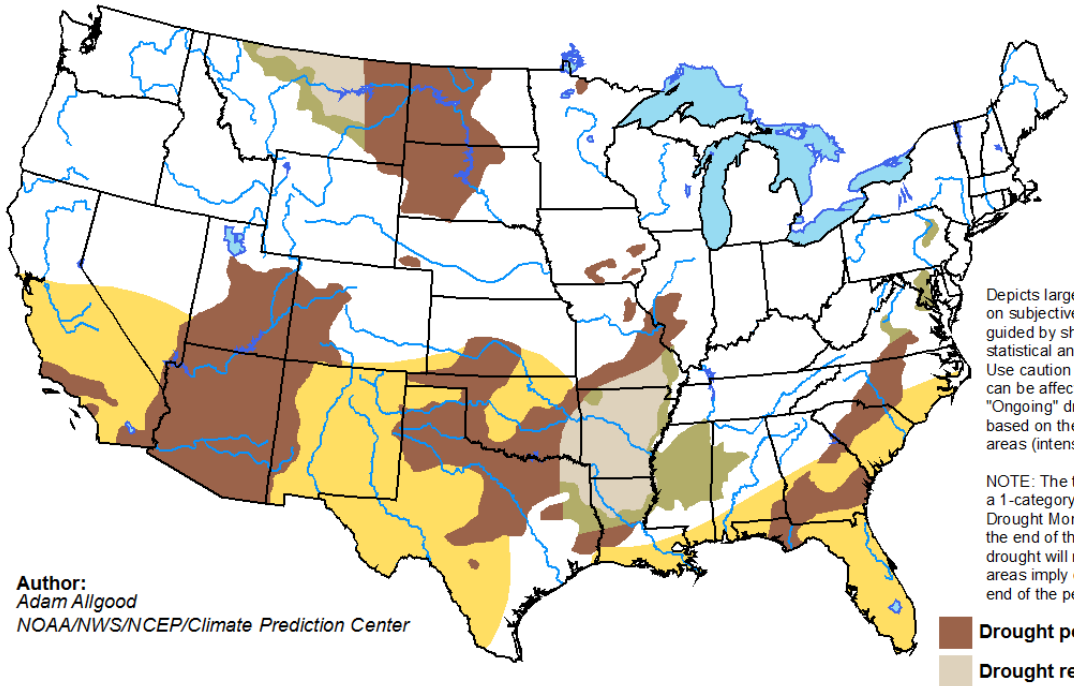
www.cpc.ncep.noaa.gov/products/predictions/30day/off15_prcp.gif




# U.S. Seasonal Drought Outlook

## Drought Tendency During the Valid Period

*Valid for December 21 - March 31, 2018*
*Released December 21, 2017*

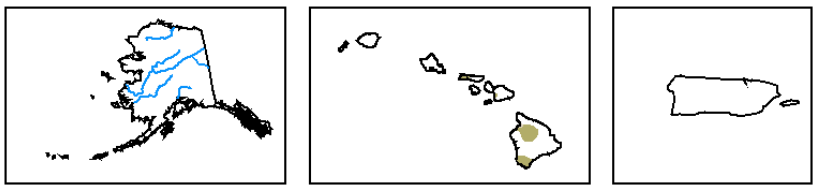


Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

**Drought persists**
**Drought remains but improves**
**Drought removal likely**
**Drought development likely**

**Author:**
*Adam Allgood*
*NOAA/NWS/NCEP/Climate Prediction Center*



**http://go.usa.gov/3eZ73**

www.cpc.ncep.noaa.gov/products/expert_assessment/season_drought.png

cc:

Jeff Zimmerman, Acting Western Region HCSD
Joe Intermill, Hydrologist-in-Charge, Northwest River Forecast Center
Steve King, Service Coordination Hydrologist /Acting DOH, Northwest River Forecast Center
Taylor Dixon, Development and Operations Hydrologist, Northwest River Forecast Center
Michelle Stokes, Hydrologist-in-Charge, Colorado Basin River Forecast Center
Paul Miller, Service Coordination Hydrologist, Colorado Basin River Forecast Center
John Lhotak, Development and Operations Hydrologist, Colorado Basin River Forecast Center
Hydrometeorological Information Center
Dean Hazen, Meteorologist-in-Charge, Pocatello, Idaho
Kurt Buffalo, Science and Operations Officer, Pocatello, Idaho
Vern Preston, Warning Coordination Meteorologist, Pocatello, Idaho
Troy Lindquist, Senior Service Hydrologist, Boise, Idaho
Brian McInerney, Senior Service Hydrologist, Salt Lake City, Utah
Kevin Berghoff, Senior Hydrologist, Northwest River Forecast Center
Brent Bernard, Hydrologist, Colorado Basin River Forecast Center
Patrick Kormos, Hydrologist, Colorado Basin River Forecast Center
PIH Mets/HMT (pih.ops)

End

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